# ATTRACTION OF THE TWO-LINED 'ŌHI'A BORER, PLAGITHMYSUS BILINEATUS (COLEOPTERA: CERAMBICIDAE), TO STRESSED 'ŌHI'A TREES*

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The endemic two-lined 'ōhi'a borer, Plagithmysus bilineatus Sharp, is host specific to Metrosideros collina subsp. polymorpha (Gaud.) Rock on the island of Hawai'i. Workers have observed active beetle attacks on 'ōhi'a associated with 'ōhi'a decline, logging operations, and road construction. In 1980, a study was initiated on Mauna Loa to demonstrate the ability of the insect to detect kairomones produced by physiologically weakened trees and document the preference of adult beetles for unhealthy trees as suitable host material.

Study trees were secured with wire and severed at the base. The saw kerf was sealed and sawdust removed. This procedure maintained the trees in a vertical position, provided a known time of stress onset, and prevented the emission of "odor" through mechanical wounding. Tanglefoot bands were used as means of trapping adult beetles. Adjacent uncut trees served as controls.

Plagithmysus bilineatus was attracted to all cut 'ōhi'a before the trees showed any visual symptoms of stress. Plagithmysus bilineatus were not attracted to control trees. Therefore, the attraction for weakened trees is a non-random response by the borer to chemical stimuli. Such discrimination in host selection by the adult P. bilineatus not only explains the preponderance of beetles in 'ōhi'a decline areas, but may provide a mechanism for oviposition on trees where early instar larvae have a greater chance of survival.

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* Abstract